



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/022,528	12/20/2001	Paul Wurzinger	016790-0446	2160
22428	7590	10/21/2003		
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			EXAMINER CASTELLANO, STEPHEN J	
			ART UNIT 3727	PAPER NUMBER

DATE MAILED: 10/21/2003

124

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/022,528

Applicant(s)

WURZINGER, PAUL

Examiner

Stephen J. Castellano

Art Unit

3727

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 5, 13, 16 and 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-12, 14, 15, 18 and 19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 3727

Claims 5, 13, 16 and 17 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected specie, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 9-11 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Goodman et al. (Goodman).

Goodman discloses a specimen holder (the evacuated wafer container holds semiconductor wafers which are considered as either a specimen or a plurality of specimens) for water-containing specimens for high-pressure freezing (the holder is inherently capable of holding water-containing specimens and inherently capable of withstanding high pressure freezing), the holder comprising two shaped parts (11, 12) detachably joinable to one another (although connected by a hinge 13, the hinge may be disassembled and the parts disconnected and the hinge reassembled), wherein the joined shaped parts form a receptacle for holding a specimen, wherein at least one of the shaped parts comprises a diamond material (it is understood that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28), and wherein the diamond material forms at least part of a first inner surface of the receptacle.

Art Unit: 3727

For claim 2, insofar as a disk could have almost any shape including a rectangular shape, both of the parts are generally rectangular and disk-shaped.

For claim 9, insofar as a synthetic polycrystalline CVD diamond material could have the exact same structure as a naturally formed or any other diamond material, this limitation is inherent in any diamond material and is structurally equivalent to any diamond material.

Re claim 18, even a very weakly constructed receptacle can contain an extremely high pressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 7-12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim in view of Goodman.

Kim discloses a specimen holder (the segmented multi-purpose container is inherently capable of holding a water-containing specimen for high-pressure freezing), the holder comprising at least two shaped parts (20 and 40) detachably joinable to one another, wherein the joined shaped parts form a receptacle for holding a specimen, wherein a spacer ring (30) is provided between the shaped parts. Kim discloses the invention except for diamond material and the metal material of the spacer ring. Goodman teaches a wafer container coated on the interior with diamond material. It would have been obvious to coat the interior of the shaped parts and spacer ring with a diamond coating in order to form a hard, nearly perfect chemically resistant

Art Unit: 3727

coating which has a low coefficient of friction to resist breakage, cracks and tearing, to resist chemical reaction and to assist in the low friction release of the specimen. Both the shaped parts 20 and 40 are metal as shown by the cross hatching in Fig. 12 and 13. It would have been obvious to provide a complementary material in the spacer ring. Therefore, it would have been obvious to fabricate the spacer ring from metal to provide a material with similar structural strength, chemical reactivity and appearance to the shaped parts in order to make the spacer ring compatible with the shaped parts.

For claim 7, the metal of the spacer ring is further defined to be gold, aluminum or copper. Gold, aluminum and copper are well known for their high thermal conductivity and low chemical reactivity. It would have been obvious to use gold, aluminum or copper with specimens requiring low chemical reactivity and where high thermal conductivity is needed for high-pressure and quick-freezing applications.

For claim 8, the upper most portion of the upper shaped part 20 defines a planar surface on a surface facing the receptacle and the lower most portion of the lower part 40 defines a planar surface on a surface facing the receptacle, the spacer is configured to serve as a seal between the planar surfaces and to define the specimen receptacle. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating forms at least one of the planar surfaces.

Re claim 18, even a very weakly constructed receptacle can contain an extremely high pressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar. Also,

Art Unit: 3727

it would have been obvious to increase the thickness of the parts to make the parts stronger and able to withstand higher pressure differentials.

Claims 1-4, 6-12, 14, 15, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linner et al. (Linner) in view of Goodman.

Linner discloses a specimen holder (the cryo-slammer is an apparatus for ultrarapid cooling of tissue samples and is inherently capable of holding a water-containing specimen for high-pressure freezing), the holder as best shown in Fig. 4 and 5 comprising at least two shaped parts (upper end plate 23 and vacuum chamber housing 47 including flange 42 and sidewall 24) detachably joinable to one another, wherein the joined shaped parts form a receptacle for holding a specimen, wherein a spacer ring (conduit housing 45) is provided between the shaped parts. Linner discloses the invention except for diamond material. Goodman teaches a wafer container coated on the interior with diamond material. It would have been obvious to coat the interior of the shaped parts and spacer ring with a diamond coating in order to form a hard, nearly perfect chemically resistant coating which has a low coefficient of friction to resist breakage, cracks and tearing, to resist chemical reaction and to assist in the low friction release of the specimen.

For claims 3 and 12, the spacer ring 45 is metal as shown by the cross hatching in the section views, especially Fig. 4 and 5.

For claims 6 and 14, the upper shaped part 23, the lower shaped part 47 and the spacer ring all have an orifice for the delivery of high pressure, the upper shaped part 23 has an upper orifice closed by plate 65, the lower shaped part 47 has an orifice associated with conduit 54 and the spacer ring has orifices associated with conduits 22 and 28. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner

Art Unit: 3727

surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating would be associated with the entire interior of the lower shaped part 47 and the facing surfaces of the upper shaped part at the very least and these surfaces have the upper orifice closed by plate 65 and the orifice associated with conduit 54, then the diamond material comprises at least two orifices for the delivery of high pressure.

For claim 7, the metal of the spacer ring is further defined to be gold, aluminum or copper. Gold, aluminum and copper are well known for their high thermal conductivity and low chemical reactivity. It would have been obvious to use gold, aluminum or copper with specimens requiring low chemical reactivity and where high thermal conductivity is needed for high-pressure and quick-freezing applications.

For claim 8, the upper most portion of the upper shaped part 23 defines a planar surface on a surface facing the receptacle and the lower most portion of the lower part 47 defines a planar surface on a surface facing the receptacle, the spacer is configured to serve as a seal between the planar surfaces and to define the specimen receptacle. Since Goodman teaches that all of the inner surfaces of all of the walls of the container 11 are diamond coated and that the inner surface of cover 12 at 26 and 27 as shown in Fig. 6a is diamond coated with coating 28, the diamond coating forms at least one of the planar surfaces.

For claim 15, the upper shaped part 23 comprises a high-pressure conduit and the lower shaped part 47 comprises a disk shaped diamond material forming the first inner surface of the receptacle and also the lower shaped part 47 comprises a high-pressure conduit and the upper shaped part 23 comprises a disk shaped diamond material forming the first inner surface of the receptacle.

Art Unit: 3727

Re claim 18, even a very weakly constructed receptacle can contain an extremely high pressure when the pressure on the exterior is the same, such as, a receptacle with an internal pressure of 2000 bar when the receptacle is placed within an external pressure of 2000 bar. Also, it would have been obvious to increase the thickness of the parts to make the parts stronger and able to withstand higher pressure differentials.

Re claim 19, Linner discloses a cryogen source as the source of fluid coolant 40.

Applicant's arguments filed October 3, 2003 have been fully considered but they are not persuasive. Applicant refers to British reference No. ('120) as evidence in support of a statement that it is well known in the art of high-pressure freezing of biological materials that "high pressure" is typically greater than 100 atm. Firstly, applicant's statement doesn't state that all high pressure freezing occurs at greater than 100 atm, only, that it is typical. Therefore, high pressure freezing at much lower pressures is not precluded. Secondly, Linner discloses that cooling fluids are typically supplied at a pressure of 10-25 psi and that 20 psi is most preferred for the Linner invention.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,



Art Unit: 3727

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

In order to reduce pendency and avoid potential delays, Group 3720 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 872-9302. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into Group 3720 will be promptly forwarded to the examiner.

Any inquiry concerning this communication of earlier communications from the examiner should be directed to Stephen J. Castellano whose telephone number is (703) 308-1035.



Stephen Castellano  
Primary Examiner  
Art Unit 3727